Guns and Public Health

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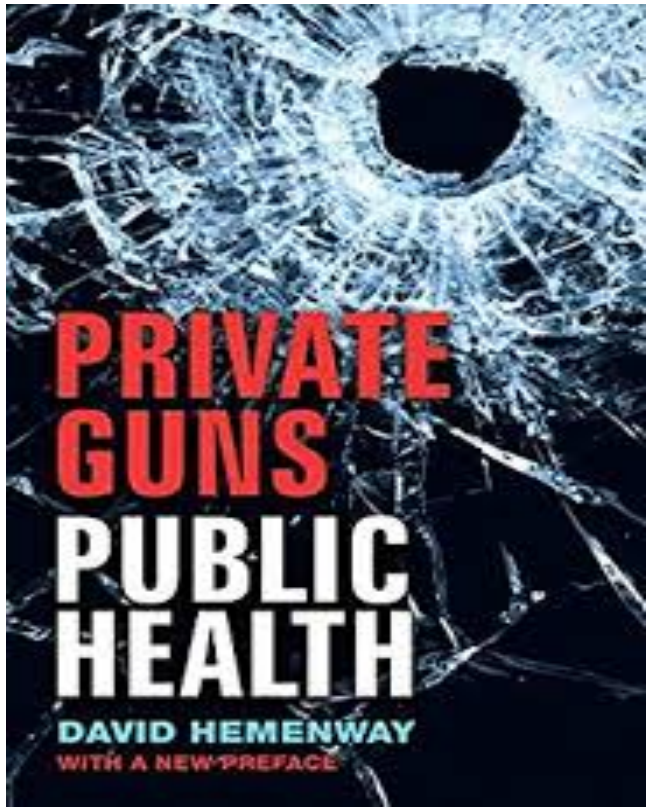
League of Women Voters Needham
September 27, 2018

Outline

- 1. Firearm violence is a public health problem.
- 2. Importance of data and research funding
- 3. Suicide


PRIVATE GUNS
PUBLIC HEALTH
DAVID HEMENWAY
WITH A NEW PREFACE

1. Gun Violence Is a Major U.S. Public Health Problem

In 2016: Per Day

>300 shot

100+ die

>1,000 criminal firearm incidents

U.S. Civilian Victims

More Americans have died from guns in the United States since 1968 than on battlefields of all the wars in American history.

If we do nothing,

over next decade

1 million Americans

will be shot.

Uniquely American

Among high-income countries, firearm death is a uniquely American problem.

U.S. vs. Other “First-World” Countries (Similarities)

- Similar Crime
- Similar Violence
- Similar Bullying Rates
- Similar Aggression/Depression Rates Among Schoolchildren

U.S. vs. Other “First-World” Countries (Differences)

- We have more households with guns.
- And particularly HANDGUNS.
- We have the weakest gun-control laws.

International Analyses

Homicide, Suicide, and Unintentional Gun Deaths Among 5– to 14–Year-Olds: The United States vs. the Other High-Income Populous Countries, 2010

	Mortality Rate Ratio
Homicides	
Gun homicides	**18.5**
Non-gun homicides	1.4
Total	3.4
Suicides	
Gun suicides	**11.2**
Non-gun suicides	1.1
Total	1.5
Unintentional firearm deaths	**12.2**
Total firearm deaths	**14.2**

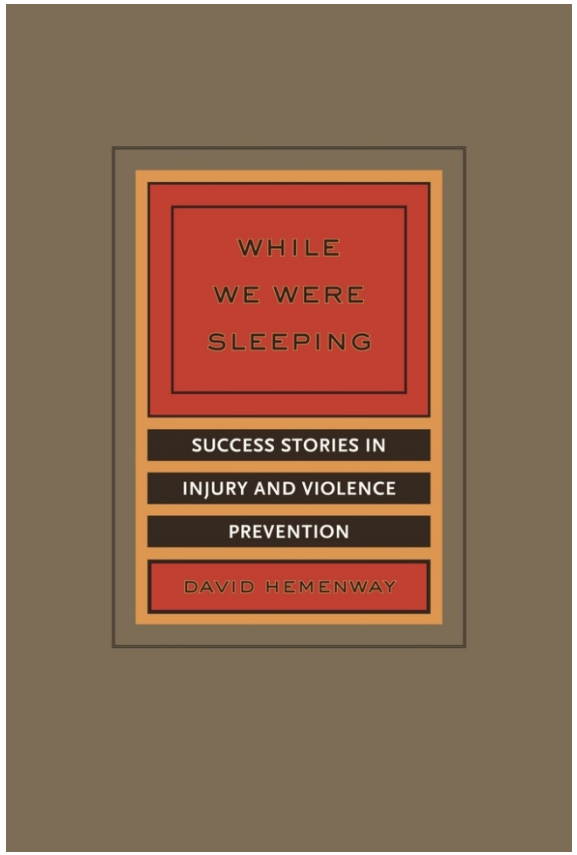
Source: Grinshetyn & Hemenway AJM 2016

Key: Other Costs Than Just Deaths

- Non-fatal injury: TBI, SCI
- Crime and intimidation
- Exposure to firearm violence—trauma, long-term physical and mental health repercussions
- Destroys social fabric of communities
- Lead poisoning and hearing loss

2. Importance of Data and Research Funding

Lots of Public Health Successes—
Why Not in Firearms Injury Prevention?



While We Were Sleeping:
Success Stories in Injury Prevention

Importance of Data and Research

- Easy to lie with statistics?
- A lot easier to lie without statistics

Children Accidental Firearm Deaths

- Children in Unintentional Firearm Deaths
  - as victims
  - as shooters

Data from the NVDRS

Unintentional Firearm Deaths to Children

Claims of gun advocates:

- "About two-thirds of accidental deaths to children are not shots fired by other little kids but rather adult males with criminal backgrounds."

—John Lott

Actual Unintentional Firearm Deaths to Children (age 0–14)

Children killing children:

- 1/3 self-inflicted
- 1/3 other children as shooters
- 1/6 older teenagers as shooters
- Most of the rest are parents as shooters.

Hemenway & Solnick Injury Epid 2015

Unintentional Child Firearm Deaths

	Deaths/Million Years	% Male	% Other Inflicted	% At Friend's House
0-1	0.4	29%	86%	0%
2-4	**1.6**	88%	**29%**	0%
5-10	1.1	72%	69%	0%
11-12	2.1	83%	67%	**39%**
13-14	2.5	95%	69%	**45%**

Hemenway & Solnick
Injury Epidemiology 2015

Of Interest

- Mostly shot by someone else (older brother or friend)
- But 2- to 4-year-olds have relatively high rates of accidental firearm deaths AND shoot selves.
- Many children shot at a friend's house but virtually no one shot at a friend's house before the age of 11, or if you are a girl.

Policy

For 2- to 4-year-olds: childproof guns

For 10+-year-old males: ASK campaign

Read All Cases: Most Common Circumstance

- “I didn’t know the gun was loaded.”

Policy

- Blame kid
- Blame parents

- Or solve problem: magazine safety

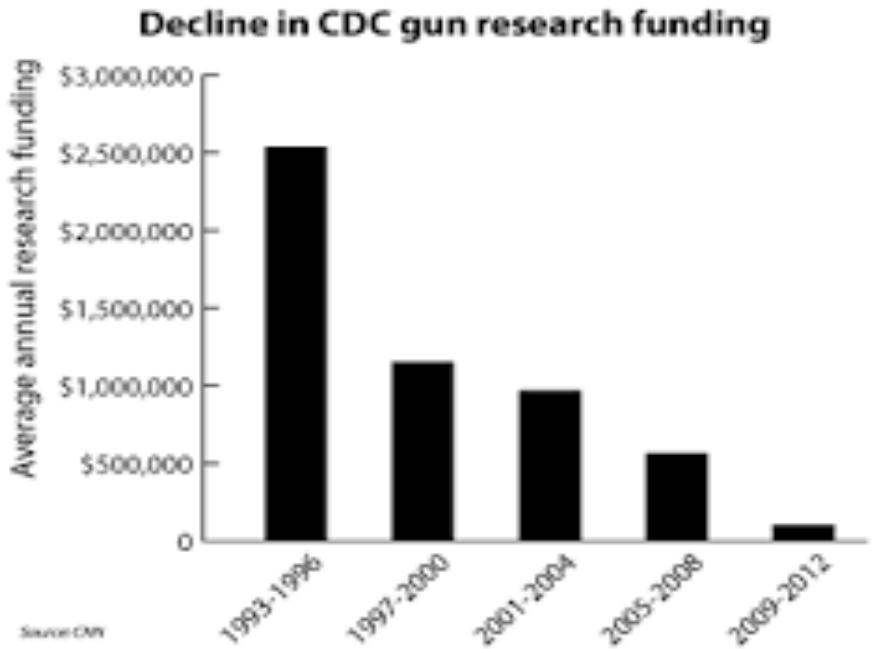
Lack of Data and Funding

- **BRFSS no gun questions**
- Few states have licensing or registration

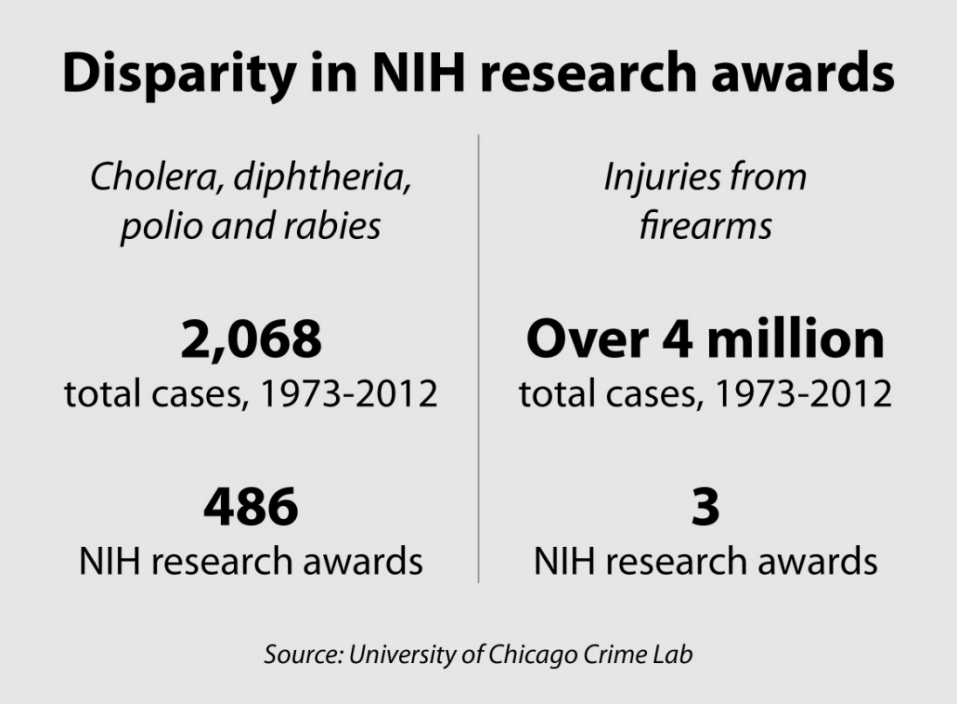
- Non-fatal data problems
- No longitudinal studies

- **Tracing data not available**
- Concealed-carry data not available

Lack of Government Funding



Lack of Government Funding



Funding and Research by Size of Problem (# deaths) 2004–2015

Funding predicted: $1.4 billion

Actual funding: $0.022 billion

<u>Medline</u>

- Publications predicted: 38,897
- Actual publications: 1,738

Stark & Shah JAMA 2017

What Do We Need More Firearms Research About? Everything!

gun theft, gun training, open gun carrying, gun storage, gun suicide, gun accidents, gun threats, gun use in self-defense, gun use to intimidate, guns in intimate partner violence, straw purchasers, smart guns, effect of gun laws, gun law enforcement, gun transfers, gun shop practices, concealed gun carrying, guns on college campuses, guns at work, guns and alcohol, police and guns, assault weapons, Saturday night specials, penalties for illegal gun use, gun trafficking, liability laws and guns, insurance for gun owners, women and guns, children and guns, minorities and guns, Second Amendment, gun ranges, guns and hearing loss, guns and lead poisoning, gangs and guns, background checks, police discretion, machine guns, burglary, home protection alternatives, ….

3. Suicide Prevention

Without changing any laws

Without changing anyone’s mental health

Traditionally suicide prevention has focused on who takes their life, when, where, and especially why.

We are beginning to understand that how people attempt suicide plays a crucial role in whether they live or die.

Britain and Domestic Gas

- 1960, domestic gas was the leading method of suicide.
- 1970, domestic gas in the UK was non-toxic.
- **Suicide rates dropped by about a third.**

Kreitman 1976, Brit J Prev Soc Med.

Sri Lanka and Pesticides

- Pesticides the leading suicide method
- Then the most toxic pesticides banned
- **Suicide rates drop 50%** from 1996 to 2005.
- No change in pesticide attempts or suicide by other methods

Gunnell 2007. Int'l J of Epidemiology.

Israeli Defense Force (IDF) and Firearms

- Suicide problem in IDF—90% by firearm—often during weekend leave.
- In 2006, IDF requires soldiers to leave weapons on base during weekend leaves.
- Suicides decrease by 40%—due to drop in weekend suicides.

Lubin 2010, Suic & Life-Threat Behavior.

How could means possibly matter??

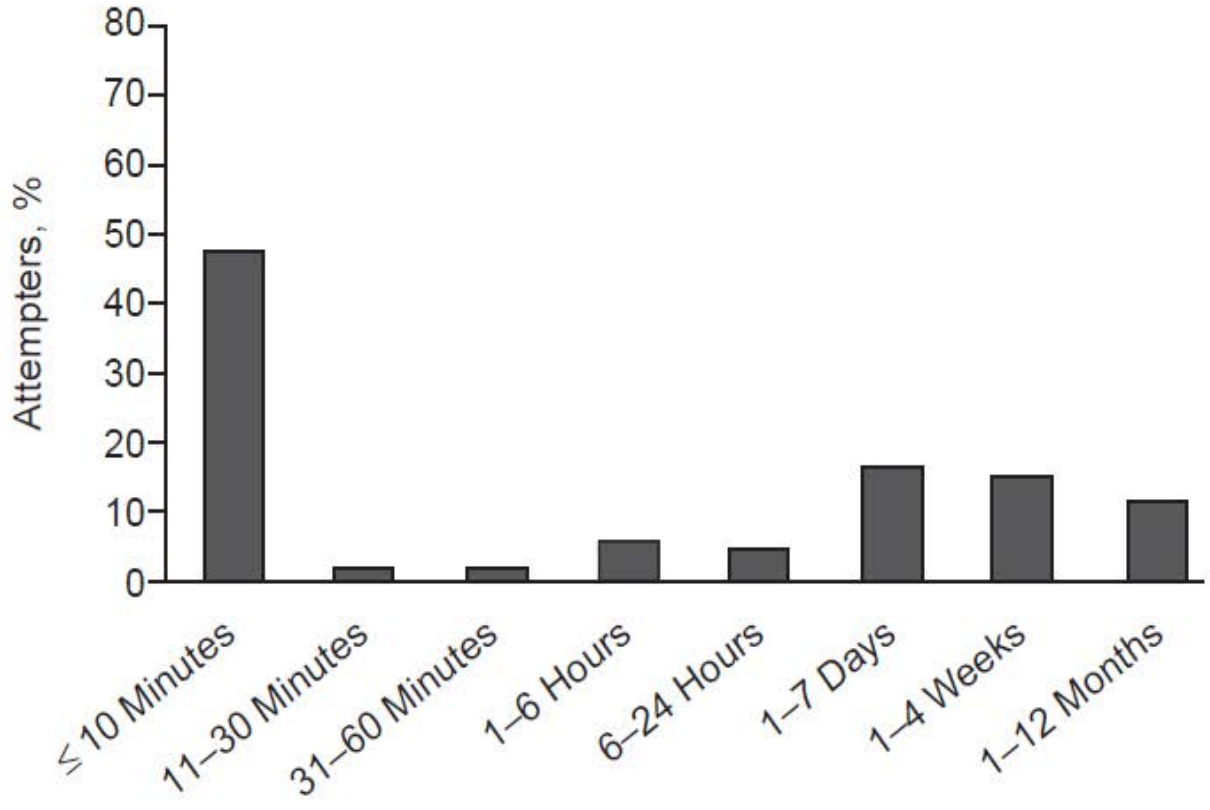
MeansMatter

1. The acute phase of a suicidal crisis is *often* (not always) brief.

MeansMatter

Duration of Suicidal Crises

Time Between 1st[s]Thought of Suicide and Attempt



Deisenhammer et al. 2009. Journal of Clinical Psychiatry, *70*(1):19-24.

When do people take their lives?

Among people who nearly died in a suicide attempt, 24% said less than 5 minutes elapsed between deciding on suicide and making the attempt.

Another 47% said under an hour.

Only 13% said one day or more.

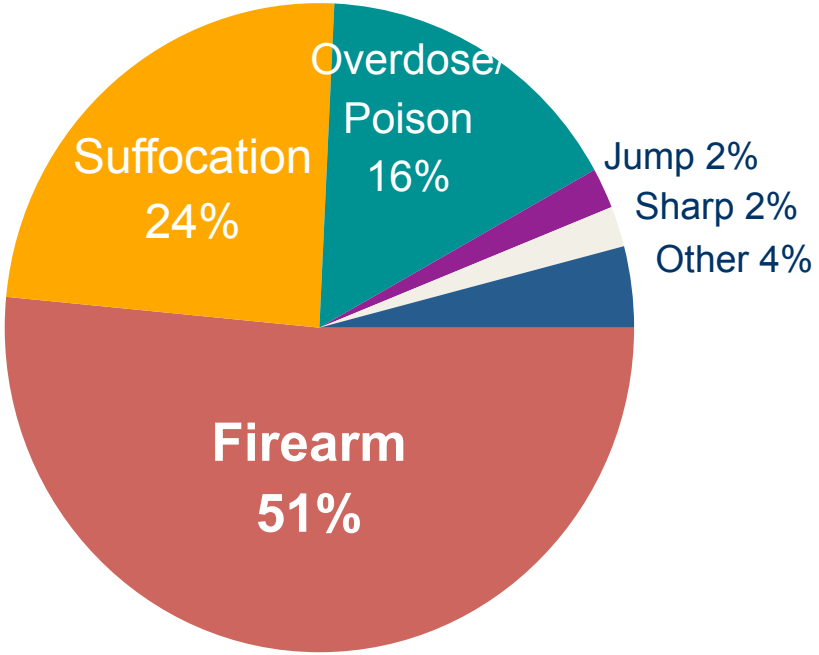
Source: Simon TR et al. Characteristics of impulsive suicide attempts and attempters. SLTR 2001;32 (supp) :49-59.

2. Lethality varies greatly by method.

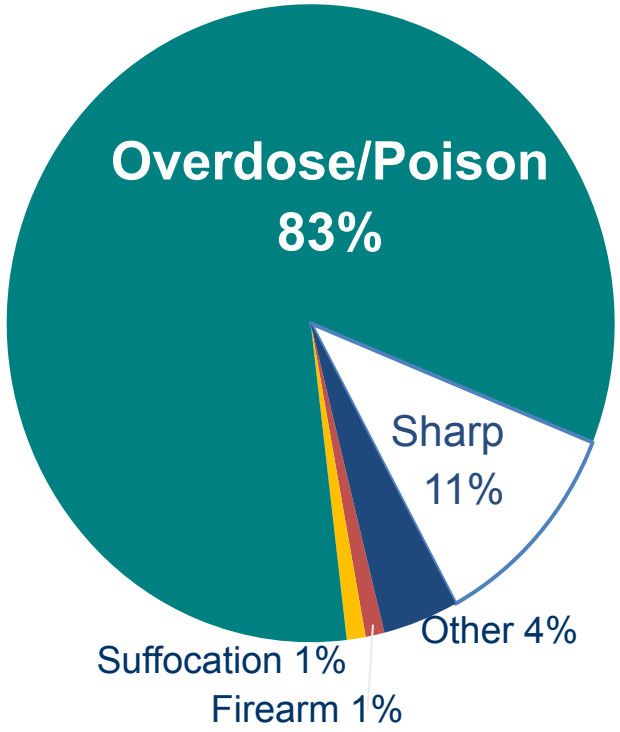
- The lethality of the method easily at hand during a suicidal crisis plays a role in whether the person lives or dies.

- Intent matters, but means also matter.

Methods of Self-Harm, U.S.



Suicide



Nonfatal Self-harm

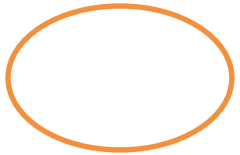
Sources: Suicide: CDC WONDER (2013)
Inpatient: HCUP-NIS (2005)

MeansMatter

3. But Is It Truly a Life Saved?

- History of suicide attempt is a risk factor for suicide.
- What proportion of serious attempters eventually die by suicide?

75% 45% 25% 10%



Review of 90 studies: 90% or more of attempters did not later kill themselves, even those making very serious attempts like jumping in front of a train. 20-25% made a nonfatal reattempt.

Owens, Br J Psych, 2002.

What Explains Differences in Suicide Across Cities, States, Regions?

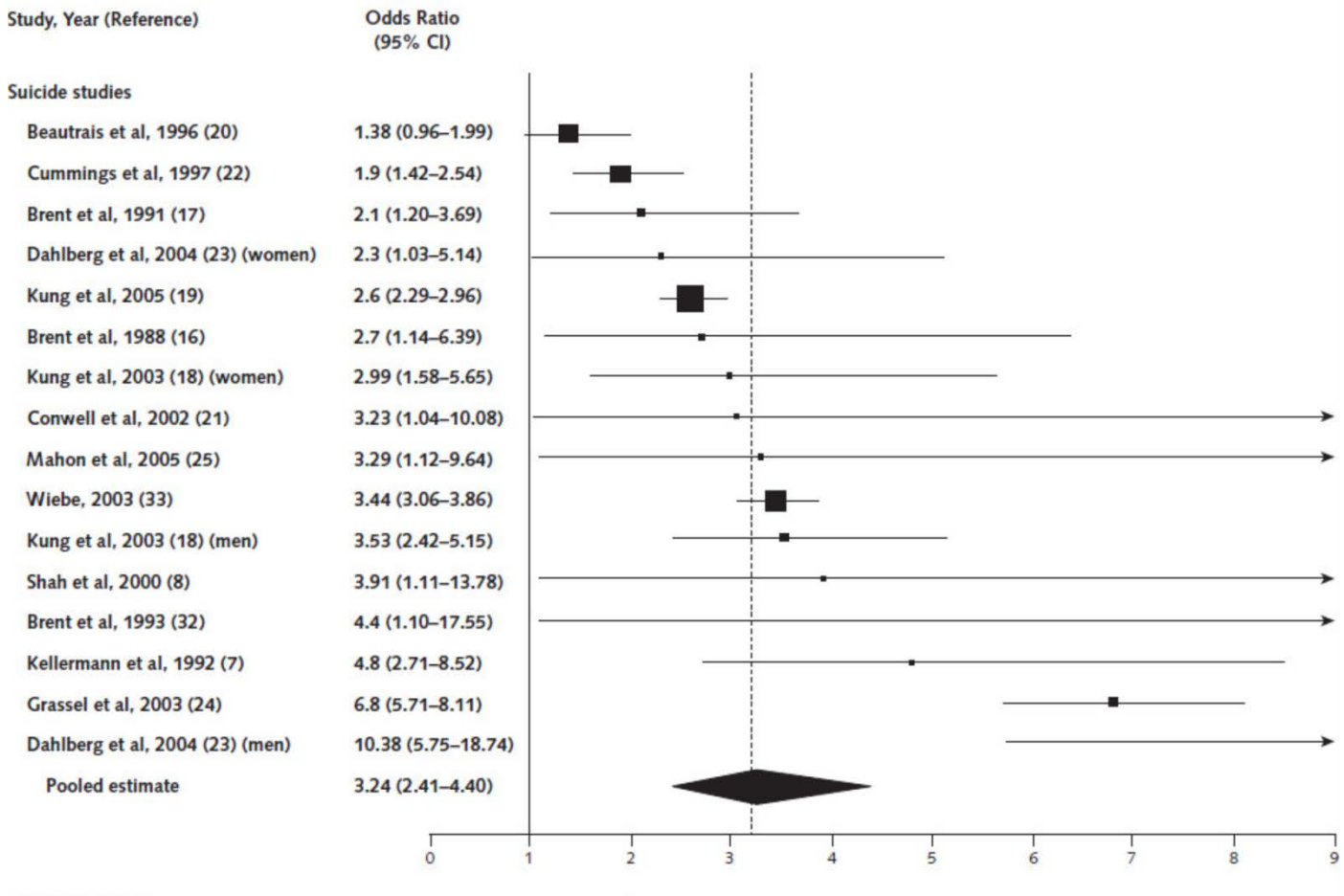
- mental health?
- suicide ideation?
- suicide attempts?

Violent Deaths, 2007-2016, U.S. Women

	High-Gun States	Low-Gun States	Mortality Rate Ratio (High Gun : Low Gun)
Total population, Female (2001-2007)	203.5 million	210.6 million	
Homicides			
Gun homicides	3394	1034	3.4
Non-gun homicides	2465	1927	1.3
Total	5859	2961	2.0
Suicides			
Gun Suicides	**5669**	**708**	**8.3**
Non-gun Suicides	**7326**	**7312**	**1.0**
Total	12995	8020	1.7
Unintentional firearm deaths	231	25	9.6
Total Firearm Deaths	9445	1783	5.5

Scientific Evidence Overwhelming

- Sixteen case-control studies



Maybe it’s not the guns…

- Perhaps the higher suicide risk has nothing to do with gun access. Maybe people who have guns are at higher risk for suicide for another reason, like living in a rural area.

Are people who live in homes with guns more likely to have…		
…a mental health problem?	Yes	No
…seriously considered suicide?	Yes	No
…attempted suicide?	Yes	No

Sorenson, 2008; Ilgen, 2008; Miller, 2009; Betz, 2011.

Consensus
Monthly Survey of Firearm Researchers

Having a gun in the home increases the risk of suicide	N = 150
Agree	84%
Neither Agree or Disagree	5%
Disagree	8%
	Hemenway & Nolan Inj Prev 2016

Finding Common Ground

- Gun organizations are very safety oriented.

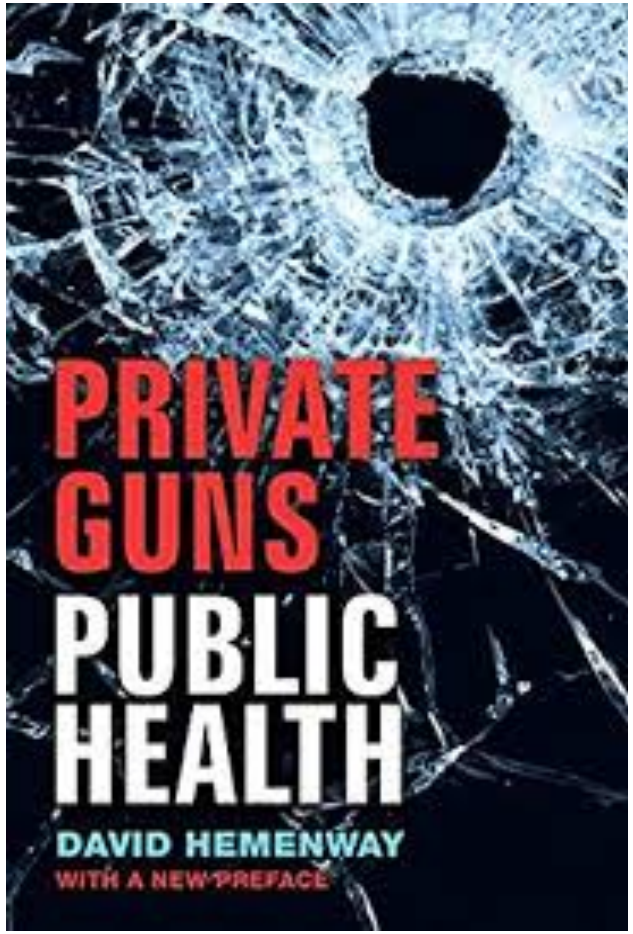
- Expand focus to include preventing firearm suicides.

Working with Gun Advocates to Reduce Suicide

- Gun Shop Project
- Gun Trainers

Changes

- A decade ago suicide prevention practitioners weren't talking about guns.
- A decade ago firearms experts weren't talking about suicide.
- Today gun shops and shooting ranges in 20 states include suicide prevention outreach as part of their mission.
- Gun training in 3 states now include suicide-prevention modules.
- But only 30% of physicians and 15% of the public agree that a gun in the home increases the risk of suicide.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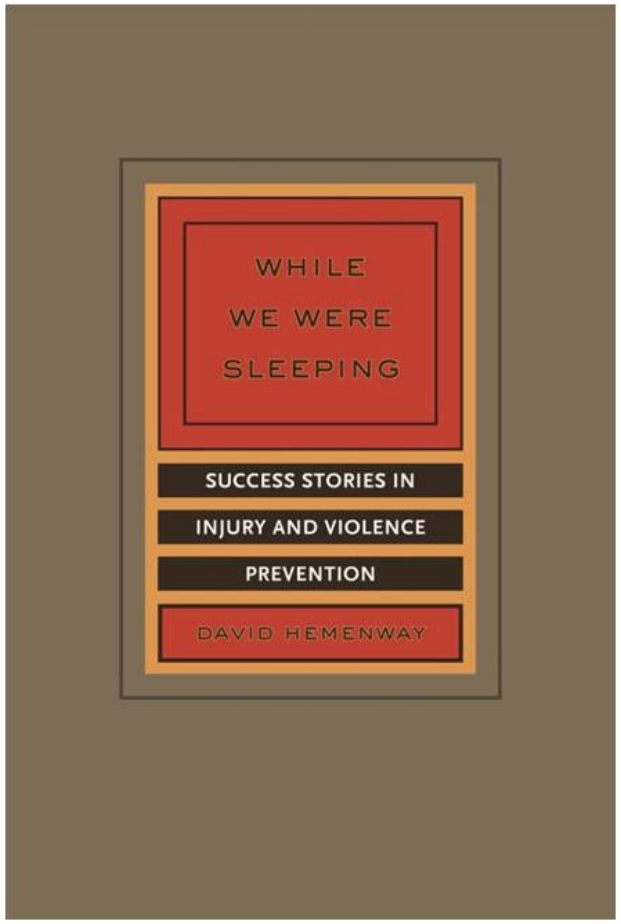
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